STAFF SUMMARY SHEET

	TO	ACTION	SIGNATURE (Surname), GRADE AND DATE		TO	ACTION	SIGNATURE (Surname), GRADE AND DATE
1	DFMI Dept Head	Approve	Appv Talbot Col 11 Feb 13	6			
2	DFER	Review	Kraus, Col 19 Feb 13	7	See Comments Within		
3	DFMI	Action		8			
4				9			
5				10			

SURNAME OF ACTION OFFICER AND GRADE	SYMBOL	PHONE	TYPIST'S INITIALS	SUSPENSE DATE
Dr Talbot, AD-24	DFMI	333-9425	bt	

SUBJECT	DATE
Clearance of Material for Public Release USAFA-DF-PA-39/40/41/42	20100525

SUMMARY

1. PURPOSE: To provide security and policy review of the attached documents prior to public release.

2. BACKGROUND: Cadets Michael O'Kelley, Jeffre Wood, David Hein, Eric Poland, and Grant Meyer were students in MSS 415S during Spring 2012 (all Class of 2012), and Cadet Michael Cooper (Class of 2013) wrote for MSS 493, Military Strategies of Europe, during Fall 2012--papers were final class research reports and are presented for inclusion in Airman Scholar Journal, an in-house publication of DFMI that is posted on both the internal and external department webs.

Titles: 2) "The Atomic Bomb: Weapon of Peace?" 3) "The Cold War Advantage of Airpower" 4) "Russia's Energy Weapon" 5) "A Modern Cuban Missile Crisis? 6) "The Politics of Destruction (note that title 1 is not authored by a cadet or faculty member, but a graduate intern from Denver University and thus, does not apply to the review/release requirements).

Issue overview: Cadet Michael O' Kelley debates whether nuclear weapons actually help to ensure a more peaceful world. Cadet Jeffre Wood follows with a discussion of Cold War airpower, and how the US advantage ensured deterrence despite the large numbers of nuclear weapons that were built by both superpowers. From there, this issue moves forward to lessons to be learned and applied. Cadet Michael Cooper explains that Russia, no longer the Cold War adversary in its former Soviet form, still has an advantage of oil and gas resources which it has used as a political weapon to wield power. In addition, Cadets David Hein and Eric Poland look at the potential of the Israel-Iran nuclear rivalry to become a modern Cuban Missile Crisis. Finally, our book review by Cadet Grant Meyer compares Richard Rhodes and John Gaddis' works dealing with the history of the Cold War and Manhattan Project.

Release Information: release for web-based publication in the e-journal entitled: Airman Scholar Journal (ASJ)

Recommended Distribution Statement: Distribution A, Approved for public release, distribution unlimited.

3. RECOMMENDATION: Sign Approve/Review blocks above indicating documents are suitable for public release. Suitibility is based solely on the document being unclassified, not jeapordizing DOD interests, nor inaccurately portraying official policy.

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The Atomic Bomb: Weapon of Peace?

MICHAEL O'KELLEY

How does the most powerful weapon in the world prevent people from going to war? It is a puzzling question, especially when one considers the history leading up to the development of atomic weapons. In World Wars I and II, the aim of strategy was to increase the destructiveness of one's military force. The advent of the atomic bomb would lead to a reversal, where the dominant strategy now is to hold our most destructive weapons as a strategic reserve to deter conflict. The concept of nuclear deterrence was not born and adopted in the same moment the atomic bomb was made. Rather, strategic theories on quick, decisive victories popular in World Wars I and II set the foundation for the later evolution of deterrence in the Cold War. This evolution can be attributed to the development of long-range delivery systems coupled with a forward-thinking understanding of what nuclear weapons could become if the precedent was set for their common use.

Gas attacks in World War I represented the first large scale attempt to deter further conflict, but the results left much to be desired. The use of gas weapons was not initially expected to be part of the war. Richard Rhodes states, "All the belligerents had agreed under the Hague Declaration of 1899 Concerning Asphyxiating Gases 'to abstain from the use of projectiles the sole object of which is the diffusion of asphyxiating or deleterious gases.'"[1] Instead, the French, and later the Germans, made it common practice to use tear gas early in the war. Although tear gas was not in the category of asphyxiating gases, its use pushed the limits of what was considered acceptable. The Germans were the first to cross the legal threshold and launched a chlorine gas attack at Ypres on April 22, 1915.[2] It was hoped that the surprise and fear generated by such an attack would cause the Canadian and French forces to surrender. Rather than seeing a great German victory, Rhodes claims, "[n]othing came of the attack except agony."[3] Not only was it the agony of the soldiers to endure the attack, but it proved to lead to the agony of all involved nations, because a dangerous precedent had been set for the use of poisonous gases in warfare. While establishing a special unit for the express purpose of gas warfare, German scientist Fritz Haber explained his reasoning that "the Western fronts, which were all bogged down, could not be got moving again only by means of new weapons ... [I]t was a way of saving countless lives, if it meant that the war could be brought to an end sooner."[4] Haber's words captured the popular consensus of his day that more destructive and frightening weapons would ultimately save lives.

This trend of destruction encouraged the employment of conventional weapons in more heinous ways, particularly the bombing of civilian centers. Strategic bombing was conceived in World War I, but the technology was not yet up to the standard required. As Jan Smuts told British Prime Minister Lloyd George in 1918

> The day may not be far off when aerial operations with their devastation

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> of enemy lands and destruction of industrial and populous centers on a vast scale may become the principal operations of the war, to which the older forms of military and naval operations may become secondary and subordinate.[5]

Italian Air Marshall Giulio Douhet argued strongly for such a development in strategy during the interwar years.[6] To Douhet, no target should be considered off-limits if its destruction could hinder an enemy's ability to fight a war. The theoretical foundations for the strategic bombing of populated civilian centers were well in place by the time the technological developments of World War II could support it. Although bombing raids always targeted buildings that directly supported the war effort, such as military factories, collateral damage was a welcomed method to melt away enemy morale. The targeting of Berlin and London shows how both the British and the Germans bought into this mindset that unrestricted war can lead to a faster and ultimately, "more moral" victory.

The trend of increasing levels of destruction in the World Wars and the later development of nuclear deterrence shared the ideological goal of saving lives, but the key difference is that one method employs all means available to secure quick victory, while the other holds its most destructive tools in reserve to prevent war from commencing or escalating. Nuclear weapons helped to make this strategic reversal possible, but something more than just the invention of atomic weapons was necessary. The threat of reprisal brought on by the development of new delivery systems was one ingredient. However, it also took foresight to see these developments on the horizon and the conscious choice not to set the precedent of treating nuclear weapons as another conventional weapon that made deterrence possible.

As the Soviets began to close the gap with the US on nuclear technology, the threat of reprisal became very clear. Although the Soviets could not realistically launch a bomber attack on the US, their ICBMs would pose a tangible threat.

Delivery technology has long been a limiting factor of nuclear weapons. As early as 1933, Leo Szilard conceptualized the basic concept for nuclear fission, "[I]f we could find an element which is split by neutrons and which would emit two neutrons when it absorbs one neutron, such an element, if assembled in sufficiently large mass, could sustain a nuclear chain reaction."[7] However, this development would have been for naught without effective methods of delivery. It is questionable whether pre-World War II bombers would have even been able to carry a nuclear weapon, much less travel the distance necessary to deliver one with the speed required to escape the blast. The use of strategic bombing in World War II provided a necessary technological improvement in aircraft that would make nuclear bombers a real threat in the years to follow. Furthermore, improvement in rocket technology, spearheaded by German V1 and V2 projects, would give nuclear powers the ability to launch a truly unstoppable nuclear strike. Without these developments, nuclear weapons would have been eternally condemned to the tactical realm. Like gas attacks, which were limited to use within a particular battlefield, nuclear weapons would have necessarily been short-range, force-on-force weapons. These technological advancements are what truly opened the door for nuclear weapons to become something other than a new battlefield weapon.

The most important facet of the development of nuclear delivery technology was that any city in the world could be held at risk. This provides a clear imperative to change the strategic mindset for their employment. While military observers were unconvinced that, "the physical effects of atomic weapons were all that revolutionary," the ability to apply these effects worldwide stands out as significant.[8] As the Soviets began to close the gap with the US on nuclear technology, the threat of reprisal became very clear. Although the Soviets could not realistically launch a bomber attack on the US, their ICBMs would pose a tangible threat. Perhaps it is because policymakers could foresee this development in technology that they began early after World War II to change the purpose of nuclear weapons to one of deterrence. Of course, there were voices, especially within the scientific community, who always argued nuclear weapons should only be used as a deterrent. They probably knew best what the future of technology would hold. Furthermore, the close proximity of indus-

try and civilian populations meant that even targeting military industry would mean much collateral damage. The rate at which technology was approaching the point where nuclear weapons could hold any city in the world at risk made it prudent for policy makers to transition from a mindset of strategic employment to one of strategic deterrence.

It took some time for the adjustment from World War II destruction to Cold War deterrence to be finalized. In the last months of World War II, it was clear that deterrence had not yet taken root in the US strategic mindset. This is evident in President Truman's decision to use two atomic bombs on Japan. Some argue it was necessary to demonstrate the power of the bomb and the U.S. willingness to use it. While this is certainly true, the dropping of a second bomb in such a short timespan also proves this weapon was intended for use rather than to be held strategically in reserve.

This mindset clearly changed as the US entered the Korean War. The US certainly had the ability to use the bomb in this conflict without serious fear of reprisal. Soviet delivery systems had not yet been sufficiently developed to hold US cities at risk, and the US was faring poorly in the conventional war against North Korea. Furthermore, military voices continued to view nuclear weapons as any other conventional weapon, "[M]ilitary planners in both Moscow and Washington clung to the reassuring notion...that World War III, should it ever come about, need not differ all that much from World War II...Both assumed the use of such weapons in any new world war, but neither regarded them as likely to be decisive."[9]

However, policymakers understood the rational implications and precedent that would be set by the use of atomic weapons. John Lewis Gaddis claims that, "Korea determined how hot wars, during the Cold War, were to be fought."[10] This paradigm shift may be attributed to post-war idealism. After World War I, the British were determined never to let a similar war happen again, and they adopted a strategy of appeasement to achieve that goal. The US may be considered to have made a similar shift in its strategy following World War II, although this time the goal was to prevent apocalyptic nuclear exchanges. The decision to engage in the Korean War without the use of nuclear weapons shows an understanding that precedent had to be set to treat nuclear weapons as fundamentally different from conventional ones and displays the forward-thinking knowledge that the current development of delivery systems would make reprisal on any city in the world a realistic threat.

The strategic change from a trend of increasing destruction to one of strategic deterrence required a keen understanding of human behavior and thorough knowledge of where the world was headed technologically. Such a decision countered every tradition of habit established during the World Wars. More destructive weapons and tactics were expected to be employed in a conflict to ensure quick victory. However, after two wars where such a strategy only brought suffering to all belligerents, it was clear that a change was needed. Nuclear delivery systems were getting more advanced by the day after World War II, and it became evident very quickly that no place in the world would be truly safe from nuclear attack. The strategic decision not to employ nuclear weapons in the Korean War, despite the lack of immediate consequences to the US, showed a conscious effort to create a policy of nuclear deterrence that would be held as the international standard for nuclear powers in the years to come.

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1 Richard Rhodes, The Making of The Atomic Bomb (New York: Simon & Schuster, 1986), 91.

2 Ibid., 92.

3 Ibid.

4 Fritz Haber quoted in Ibid., 92-3.

5 Jan Smuts quoted in Ibid., 100.

6 Britannica Biographies, December 2011., s.v. "Giulio Douhet."

7 Leo Szilard quoted in Rhodes, 28.

8 John L. Gaddis, We Now Know: Rethinking Cold War History (New York: Oxford, 1997), 102.

9 Ibid., 102.

10 Ibid., 103-4.

Basic research is what I'm doing when I don't know what I'm doing. --Werner Von Braun